

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application]With respect to the identifying method of a tire, this invention in more detail, Tire information, such as tire sizes, a manufacturer name, a manufacturing date, is bar-code-ized, and it gives a tire, and is related with the identifying method of the tire which can read the tire information of this bar code at the time of necessity, and can perform sorting of a tire, and a quality control with sufficient accuracy.

[0002]

[Description of the Prior Art]In recent years, it is becoming indispensable with diversification of tire sizes to identify tire information, such as tire sizes, a manufacturer name, a manufacturing date, with high precision. The sorting classification at the time of this tire information being given to a green tire and conveying this green tire to a vulcanizer, Sorting classification at the time of conveying the tire fabricated by the final shape after vulcanization to next processes, such as finishing and an inspection process (conveyance of the tire between this process) being carried out where the thing of many different-species sizes is intermingled -- many -- it is used for the quality control etc. which are performed by managing the history of the tire which became a rejection by the inspection.

[0003]By the way, generally that by which the method of identifying the tire at the time of performing conventionally sorting classification etc. of the tire mentioned above was indicated by JP,S61-27711,A, for example is known. The identifying method of this tire sticks the bar code ticket which bar-code-ized tire information on the bead part of the green tire which completed molding, at the time of necessity (sorting classification of tire sizes), reads that bar code with a bar code reader, and is identifying the tire.

[0004]The bar code which bar-code-ized tire information to the inner liner of the tire is printed, at the time of the necessity for the forming cycle of a green tire, a vulcanization step, and an inspection process, to JP,H3-213407,A, the bar code is read with a bar code reader, and the tire is identified to it.

[0005]

[Problem(s) to be Solved by the Invention]However, if it is in the identifying method of the former tire mentioned above, In order to stick a bar code ticket on the bead part of a green tire, The rubber flow arose in the bead part on which the bar code ticket was stuck at the time of vulcanization, and there was a problem referred to as air leakage being unable to occur when combining the completed tire with a rim, or a bar code ticket separating occasionally and being unable to acquire tire information.

[0006]Since a bar code was printed at the process (material coiling stage) before shaping of a

green tire if it is in the identifying method of the latter tire, there was a problem referred to as being unable to input the information under shaping of a green tire, including a manufacturer, a molding equipment number, etc. Since an inner liner was usually used over the tire of number size, the printing content needed to be changed in the middle of the coiling stage, and there was a problem referred to as being unable to cope with it in this case. The bar code reader marketed although a bar code is read could not be used, but there was a problem referred to as producing a reader for exclusive use.

[0007] This invention prevents the air leakage at the time of being thought out paying attention to this conventional SUBJECT, and combining with the rubber flow of the bead part at the time of vulcanization, or a rim, and. It cannot leak, required tire information can be given to a tire, this tire information can be acquired certainly, and it aims at providing the identifying method of the tire which can perform sorting of a tire, a quality control, etc. with sufficient accuracy.

[0008]

[The means for solving an invention] In order that this invention may attain the above-mentioned purpose, let it be a gist to print the bar code which has tire information and for said bar code to be printed by the bead part of the fabricated green tire in the method of reading this bar code with a reader and identifying a tire. Said bar code makes it a gist to print the portion of a space.

[0009]

[Function] In order to print the bar code which this invention is constituted as mentioned above and has tire information in the bead part of the fabricated green tire, It is not necessary to have a bar code ticket etc. in a bead part, and the rubber flow of the bead part produced with a bar code ticket at the time of vulcanization and the air leakage at the time of combining the completed tire with a rim can be prevented. Since it prints after the end of shaping of a green tire, it cannot leak, the required tire information under shaping of a green tire can be given to a tire, this tire information can be read certainly, and sorting of a tire, a quality control, etc. can be performed with sufficient accuracy.

[0010] This ticket separates like a bar code ticket, and reading of tire information does not become impossible. Since the portion of a space is printed, said bar code can use the bar code reader marketed although a bar code is read, and can make cheap the device with which this method is presented.

[0011]

[Example] Hereafter, working example of this invention is described based on an accompanying drawing. Drawing 1 shows the process of printing a bar code to the bead part of a green tire, Centering and slewing mechanism for the green tire T has had the conveyor-belt 1 top conveyed, and 2 carrying out centering of this green tire T, and making it rotate, Printers, such as an ink jet printer for 3 to print the bar code b to bead part Tb of the green tire T, and 3a

are the print heads of this printer.

[0012]The green tire T which various kinds of components, such as an inner liner, carcass ply, a sidewall, are assembled and fabricated [green tire], and has had the conveyor-belt 1 top conveyed. With a stop of the conveyor belt 1, centering is carried out by the centering and slewing mechanism 2, it is held at the motorized pulley 2a which can be rotated, and rotation is given at the rate of predetermined.

[0013]Ink printing of the bar code b which bar-code-ized tire information, such as tire sizes, a manufacturer name, a manufacturing date, is carried out to said bead part Tb by the print head 3a of the printer 3 which is standing by on bead part Tb of the green tire T. In this case, the ink used is the ink which could print to the unvulcanized rubber and was stabilized also at the time of vulcanization.

The difference of white or reflectance with the rubber of the green tire T should just be ink of bright large color, and is not limited in particular.

In order to be able to adjust easily the amount of tire information of the bar code b (the length of the bar code b), the print head 3a has a preferred thing of an injection type non-contact. For example, it is a thing etc. of the method blown while electrifying ink and making it deviate by magnetism.

[0014]It may be made for the bar code b printed by said bead part Tb to form black Bar who what printed Bar who shows tire information, such as white ink, at the predetermined intervals may be satisfactory for, and prints the portion of a space and shows tire information on the green tire T. In the case of the former, when reading with the bar code reader 4 mentioned later, what has monochrome inverting function in this bar code reader 4 is required. In the case of the latter, the bar code reader marketed although the bar code b is read can be used, and it is possible to make cheap the device with which this method is presented.

[0015]The bar code b printed by bead part Tb of said green tire T. the time of necessity (the sorting classification at the time of conveying the tire fabricated by the final shape after the sorting classification at the time of conveying a green tire to a vulcanizer, and vulcanization to next processes, such as finishing and an inspection process,.) When the history of the tire which became a rejection by the inspection gets to know, as shown in drawing 2, it is read by the bar code reader (reader) 4. The green tire T1 has had the conveyor-belt 2 top conveyed in drawing 2, or the tire after vulcanization, The main part of the bar code reader 4 and 4b of centering and slewing mechanism for 6 to rotate this green tire or the tire T1 after vulcanization with centering and 4a are the bar code scanners of the bar code reader 4.

[0016]Centering of the green tire which has had the conveyor-belt 5 top conveyed, or the tire T1 after vulcanization is carried out by the centering and slewing mechanism 6 with a stop of the conveyor belt 5, it is held at the motorized pulley 6a which can be rotated, and rotation is given at the rate of predetermined. The bar code b is read by the bar code scanner 4b of the

bar code reader 4 which is standing by on bead part Tb of the tire T1 with rotation of the tire T1. The signal read by the bar code scanner 4b is sent to devices (not shown), such as a computer which processes back tire information via the main part 4a of the bar code reader 4, and is used for sorting of the tire T1, a quality control, etc.

[0017]When bars, such as white ink to which the bar code reader 4 indicates that tire information mentioned above, are printed at the predetermined intervals, and reading, it has monochrome inverting function. When the black bar which prints the portion of a space and shows tire information on the green tire T is formed, the bar code reader marketed although the bar code b is read can be used, and the device with which this method is presented can be made cheap.

[0018]When printing the bar code b to bead part Tb of the green tire T, rotate this green tire T, and made it print by the print head 3a of the printer 3 in above-mentioned working example, but. It may be made to print the bar code b, fixing the green tire T and moving this print head 3a along with bead part Tb. It is also the same as when reading the bar code b printed by bead part Tb of the green tire T with the bar code reader 4.

[0019]By this invention, the bar code b which has tire information in bead part Tb of the fabricated green tire T is printed as mentioned above.

Therefore, it is not necessary to attach a bar code ticket etc. to bead part Tb, and the rubber flow of bead part Tb produced with a bar code ticket at the time of vulcanization and the air leakage at the time of combining the completed tire with a rim can be prevented.

Since it prints after the end of shaping of the green tire T, it cannot leak, the required tire information under shaping of the green tire T can be given to a tire, this tire information can be read certainly, and sorting of a tire and a quality control can be performed with sufficient accuracy.

[0020]This ticket separates like a bar code ticket, and reading of tire information does not become impossible. When the portion of a space is printed as said bar code b, the bar code reader marketed although the bar code b is read can be used.

[0021]

[Effect of the Invention]In order to print the bar code which this invention is constituted as mentioned above and has tire information in the bead part of the fabricated green tire, It is not necessary to have a bar code ticket etc. in a bead part, and is effective in the ability to prevent thoroughly the rubber flow of the bead part produced with a bar code ticket at the time of vulcanization, and the air leakage at the time of combining the completed tire with a rim.

[0022]Since it prints after the end of shaping of a green tire, it cannot leak and can give the required tire information under shaping of a green tire to a tire, and. It is effective in the ability to read this tire information certainly and perform sorting of a tire, and a quality control with sufficient accuracy, without reading of tire information becoming this ticket separating like a bar

code ticket, and impossible.

[0023]When the portion of a space is printed as said bar code, The bar code reader marketed although a bar code is read can be used, and the device with which this method is presented is cheap, the direction of bar code printing is lower-cost than sticking that upper bar code ticket, and it is effective in the ability to carry out this invention by low cost.

[Translation done.]